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ABSTRACT

Three categories of dependent variables used in classroom research were defined: (1) academic--behavior related to a specific academic area, achievement, or test performance; (2) departmental--behavior related to classroom conduct, such as paying attention to teacher, whispering, and following instructions; and (3) other--including thumbsucking, peer tutoring, and attendance. Two independent raters reliably assigned each classroom study of student behavior published in the Journal of Applied Behavior Analysis since 1968 to one or more of the three categories, according to the dependent variables used in the study. Results indicated that more than twice as many behavior modification studies have featured departmental dependent variables as have featured academic; it was also noted that there has been no change in this ratio. Departmental behaviors may have been the focus of classroom research because they are more easily defined, observed, and measured than academic achievement; and because researchers often gain access to a classroom setting in order to improve student behavior problems. Emphasis on academic behavior is recommended because academic behavior is a more valid indicator of effective classroom interventions, and because educators should strive to improve children's academic functioning as opposed to making them still, quiet, and docile. (Author/GDC)

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Be still, be quiet, be docile: What do the data say?[I]

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Abstract

Definitions for three categories of dependent variables used in classroom research -- academic, deportmental, and other -- were constructed. Two independent raters reliably assigned each classroom study published in the Journal of Applied Behavior Analysis since 1968 to one or more of the three categories, according to the dependent variables used in the study. Results indicate that more than twice as many studies have featured deportmental dependent variables as have featured academic, and there is no indication of a change in this ratio. The arguments surrounding the use of either academic or deportmental dependent variables in classroom research are presented, and a recommendation is made.

Winett and Winkler (1972) criticized classroom behavior modifications as supporting the questionable status quo of the educational system and as attempting to produce still, quiet, and docile children. However, as O'Leary correctly points out in his rejoinder (1972), Winett and Winkler made sweeping over-generalizations based on a sample of only 16 Journal of Applied Behavior Analysis studies. The purpose of the present research was to objectively determine whether, in fact, classroom behavior modification, as represented in the Journal of Applied Behavior Analysis, has focused more on deportmental, rather than on academic, behaviors, and to discuss the relative merits of deportmental and academic dependent variables.

Method

A data collector, unaware of the purpose of the experiment, reviewed every issue of the Journal of Applied Behavior Analysis from 1968 through 197 . The data collector first identified each study that was conducted in an elementary (k-6), junior-high (7, 8, and 9), or high school classroom, and which reported measures of student behavior. Then, on a recording form, he entered the complete reference, the author's exact description of the subjects, any special characteristics of the setting (e.g., classroom for the retarded), and the page numbers and verbatim definitions of the students' behaviors that were modified (i.e., the dependent variables).

Definitions for deportmental, academic, and other behaviors were constructed by including frequently used and representative behaviors

from the response definitions employed in the classroom studies. The composite definitions used were as follows:

Departmental behavior: Departmental behavior includes those responses related to classroom conduct. Examples of such behaviors are body-orientation towards the teacher or blackboard, eyes looking at the assignment, pencil on paper, writing on paper, feet on floor, in-seat, keeping one's hands to oneself, raising hand, hitting, kicking, disturbing another's property, talking to neighbors, whispering, and noise level, following instructions, or asking permission. Departmental behavior is often labelled as study behavior, inappropriate or appropriate behavior, on-task behavior, attending behavior, desirable behavior, or disruptive behavior (e.g., Bailey, Wolf, & Phillips, 1970; Barrish, Saunders, & Wolf, 1969; Bolstad & Johnson, 1972).

Academic behavior: Academic behavior includes responses directly related to a specific academic area, such as reading, math, social studies, or test performance. Academic behavior usually results in a permanent product, such as number of words written, number of pages read, size of letters printed, scores on tests, or number of problems completed, but can also include verbal responses such as repetition of numerals, or number of questions asked. However, some measure of the quantity or quality of the response must have been included and the response must not be included as part of a larger category, such as appropriate or inappropriate behavior, to be included in the academic behavior category (e.g., Ballard & Glynn, 1975; Brigham, Finfrock, Breunig, & Bushell, 1972; Gaubard, & Stans, 1972).

Other behavior: Other behavior includes any responses that are not considered departmental or academic according to the above definitions. Examples of such behaviors would be epileptic seizures, thumb-sucking, peer-tutoring, self-stimulation, attendance, and shoe-tying (e.g., Fox and Azrin, 1973; Hauserman, Walen, and Behling, 1973).

Two independent observers, also unfamiliar with the purpose of the experiment, were given instruction sheets and copies of the definitions to read. After passing a short quiz on the material, with a score of 90% or better, the observers read the information on the recording forms and assigned each study to any or all of the behavioral categories.

Reliability: Reliability was calculated on studies selected for inclusion in the data by comparing the list compiled by the data collector with a second list compiled by the senior author. Those studies included on both lists were scored as agreements; those included on only one list were scored as disagreements. The number of agreements divided by the number of agreements plus disagreements yielded an overall reliability of .93. Any studies not included on both lists were reviewed again by the senior author and the data collector, and either excluded or included according to the same criteria established for the other studies. This procedure insured a more thorough and accurate list of the studies to be included in the final data analysis.

Inter-observer reliability was also calculated on the studies assigned to each of the three behavioral categories. If both observers assigned a study to the same behavioral category, an agreement was scored for that category. If only one observer assigned a study to the category, a

disagreement was scored. The number of agreements divided by the number of agreements plus disagreements yielded reliability scores of .94, .92, and .86 for deportmental, academic, and other, respectively.

Results

Figure 1 shows the number of studies per year of publication assigned to the deportmental, academic, and other categories, as well as studies assigned to both the deportmental and academic categories. The ordinate represents the number of studies and the abscissa represents the year in which the studies were published. Only once, in 1976, has the number of studies published yearly featuring academic dependent variables, exceeded

Insert Figure 1 about here

those featuring either deportmental or other dependent variables. The mean number of studies in the deportmental category is 6.6, in the academic category 2.8, and in the other category 1.1, The mean number of studies in the "both" category is 2.1.

Discussion

These results demonstrate that behavior modification classroom research, as represented by the Journal of Applied Behavior Analysis, has focused considerably more on modifying the deportmental, rather than the academic behaviors of school-aged children. In the past 10 years, over twice as many studies have reported the modification of classroom conduct behaviors than have reported the direct modification of academic responding, and the data show no trend towards a change in this ratio.

This emphasis on deportmental behavior has not been dysfunctional.

Early studies made important contributions to the fields of education and psychology because demonstrations of behavioral control in the classroom, regardless of the particular target behaviors, were unique and impressive (Winett & Winkler, 1972; O'Leary, 1972). These pioneering studies and those that followed have demonstrated repeatedly the power of the principles of behavior.

Deportmental behaviors have been preferred, too, because they can be more easily defined, observed, and measured. As Salzberg, Wheeler, Devar, and Hopkins (1971) point out, academic dependent variables present measurement difficulties and possible shifting baselines during skill acquisition, making them difficult to control for research purposes. Furthermore, since classroom assignments typically vary from day to day, researchers must somehow control for frequent changes in assignment length and difficulty. Others have noted definitional problems in attempting to operationalize such valued academic characteristics as "creativity" (Goetz & Baer, 1973; Maloney & Hopkins, 1973).

Anecdotal reports in the literature (Hall, Panyan, Rabon, & Broden, 1968; O'Leary & Becker, 1967) indicate that teachers and principals often solicit the assistance of behavior modifiers not to directly improve the academic performance of the children (which apparently the teachers can do), but instead to help with classroom management and behavior problems. By focusing on deportmental behavior, researchers may have gained access to research settings which otherwise might not have been available.

There are, however, several arguments for changing the current ratio

of more than two studies with deportmental dependent variables for every one study with academic dependent variables. First, such a ratio provides little evidence to counter criticisms like those raised by Winett and Winkler — that behavior modifiers are disseminating a technology to create still, quiet, docile automatons.

Secondly, changes in deportmental behavior may not provide a valid measure of the effectiveness of classroom interventions. Deportmental behaviors appear to be influenced by several, frequently changing, classroom variables. Ayllon, Layman, and Burke (1972) noted that disruptive behavior was substantially reduced, prior to the introduction of a token economy, by the systematic presentation of academic materials. Dangel and Hopkins (Note 1) have reported that the percent of appropriate classroom behavior can be easily increased or decreased merely by increasing or decreasing the number of problems assigned. Unless these, and perhaps other, yet unidentified, variables are controlled, changes in deportmental behaviors may be a function of changes in several, not just the experimental, independent variable.

If deportmental behavior can, in fact, be controlled by manipulations of academic material or other common classroom variables, it would seem expeditious to implement such low cost procedures and reserve more costly procedures, such as teacher-training programs or token economies, for otherwise unattainable target behaviors. Thus, changes in deportmental behavior may not warrant such expensive procedures as have been used.

Finally, few would dispute that one of the foremost goals of the educational system is to improve the academic functioning of children.

Though an increase in appropriate, on-task, or study behavior, or conversely, a decrease in inappropriate, off-task, or disruptive behavior has been presumed to be associated with improved academic performance (Surratt, Ulrich & Hawkins, 1969; O'Leary, Becker, Evans & Saudargas, 1969; and Schmidt & Ulrich, 1969), or at least with getting children ready to learn (Madsen, Becker, & Thomas, 1968), this relationship has never been empirically demonstrated. In fact, the research of Ferritor, Buckholdt, Hamblin, and Smith (1972) indicated that contingencies applied to attending behavior had little effect on work completed correctly. Furthermore, when the contingencies were placed on correct work, attending behavior dropped, but the number of problems correct increased.

Other evidence supports the notion that contingencies must often be placed precisely on the behavior intended for modification. For example, Hopkins, Schutte, and Garton (1971), Semb and Semb (1975), and Van Houten, Morrison, Jarvis, and McDonald (1974), all note that contingencies applied only to the rate of the response, without regard to accuracy, may lead to more, or faster, but less accurate work. Since it has not been clearly established that improved deportmental behavior increases academic performance, researchers interested in improving academic performance should likely manipulate academic dependent variables directly.

These arguments present the issues surrounding the selection of dependent variables in classroom research. The ultimate decision as to the relative merits of research involving academic behavior versus other types of behavior, becomes a social validity issue (cf., Wolf, Note 2) and as such, can only be decided by the consumers -- parents, children, and

educators. Indeed, there is a strong need for dialogues in the community to determine the values, goals, and priorities of our educational system, but until these dialogues occur, behavior analysts would do well to consider the current state of evidence, and the arguments for and against selecting academic or deportmental dependent variables, before shaping the course of the technology.

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Footnotes

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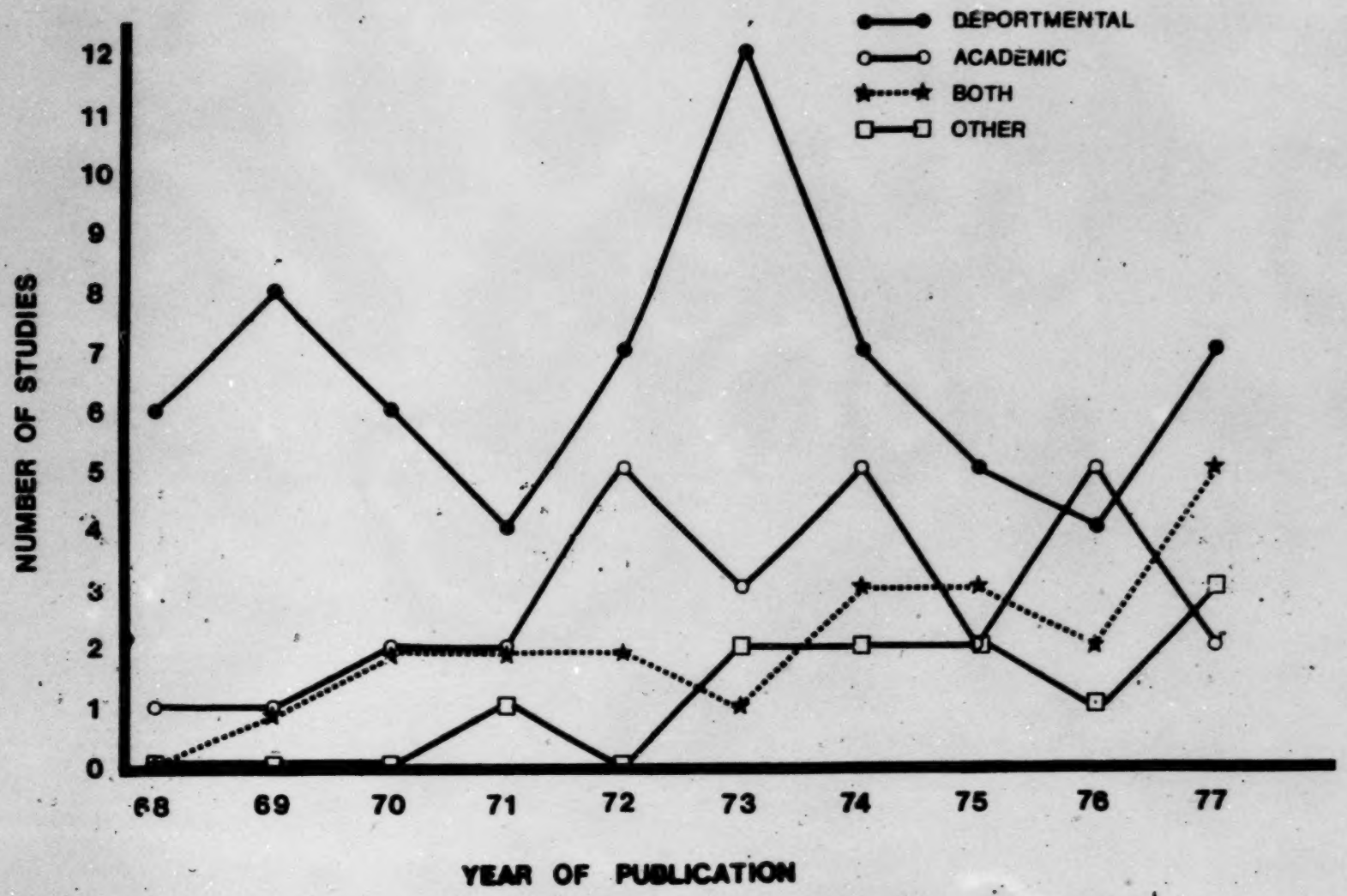
Figure Caption

Figure 1. Number of studies published each year featuring deportmental, academic, both or other categories of dependent variables.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YEAR OF PUBLICATION